

REMARKS

In response to the January 13, 2006 Final Office Action, the following is submitted:

No amendments are made to the claims. Thus, claims 4-10, 14-22, 23 and 25-28 are pending in the application.

Claims 4, 9, 10, 14, 19, 20, and 26-28 have been rejected under 35 U.S.C. §103 as obvious over Yaegashi in view of Takahisa and Arai for the reasons stated in section 2 on page 2 of the Office Action. Furthermore, claims 5-8, 15-18, 21, 22, and 25 have been rejected under 35 U.S.C. §103 as obvious over Yaegashi in view of Takahisa and Arai and further in view of Miyazaki for the reasons stated in section 3 on page 3 of the Office Action. These rejections are traversed for the following reasons:

The present invention relates to a thin film transistor and a flat-panel display including a plurality of such thin film transistors and to a process for making a flat panel display including such thin film transistors.

The thin film transistors of the present invention comprise a unique structure in which one of the source, drain, and gate electrodes comprises an orderly stacked structure of a titanium layer, a diffusion prevention layer, and aluminum-based metal layer, a

diffusion prevention layer, and a titanium layer. The diffusion prevention layer is a titanium nitride layer containing 5 to 85% of nitrogen.

Applicants have not claimed to have invented the thin film transistor nor have claimed to have invented each of the specifically recited layers forming the structure of the thin film transistor. Rather, the applicants have claimed a thin film transistor having a unique structure comprising a combination of layers arranged in a specific order, the diffusion prevention layer being a titanium nitride layer having a specific range of nitrogen.

Stated differently, Figure 6 of Yaegashi shows a gate electrode 32b, an orderly stacked structure of an Al layer 33a/an AlO_x layer 33b/a Ti layer 33c, and source/drain electrodes 38b, 38c formed on ohmic contact layers 37 which are contacted with an active element. Therefore, the Yaegashi reference does not teach or suggest an orderly stacked structure of Ti/TiN/Al based metal/TiN/Ti and an orderly stacked structure of Ti/diffusion prevention layer/Al based metal/diffusion prevention layer/Ti.

Takahisa refers to source/drain electrodes respectively having an orderly stacked structure of Ti/TiON/Al alloy/Ti/TiN. This stacked structure is not same as the stacked structure of the present invention of Ti/TiN/Al based metal/TiN/Ti and Ti/diffusion prevention layer/Al based metal/diffusion prevention layer/Ti.

A more detailed analysis of column 1 of the Arai reference indicates that a lower layer line of a TFT of the prior art should have various properties, and to have these properties, the lower layer line is formed of TiN containing equal to or less than 50 atm% of Ni. Thus, the column 1 of the Arai reference does not teach or suggest the orderly stacked structure of the present invention.

The Examiner has taken bits and pieces of various unrelated references and combined them in a non-obvious fashion to produce combinations which purportedly meet the recited limitations of the rejected claims. There is no teaching or suggestion or incentive in any of the cited references supporting the proposed combinations but rather it is clear that the Examiner used the teachings of the present application to combine the cited references.

The only argument presented by the Examiner for combining references is: "in order to have a liquid crystal display device with increased performance". This is a non sequitur in that there is a presumption that a claimed invention is an improvement over the prior art. There would be no reason to produce an invention having decreased performance as compared with the prior art.

In view of the above, it is submitted that it would not be obvious to combine the references in the fashion noted by the Examiner and accordingly, it is submitted that all

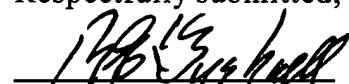
of the claims now present in the application are patentable over the proposed combination of references and should therefore now be in a condition suitable for allowance.

Two Information Disclosure Statements were submitted to the U.S. Patent and Trademark Office on the 12th of July 2005 and on the 10th of March 2006. Entry of these properly submitted Information Disclosure Statements and consideration of the references cited in these Information Disclosure Statements are requested.

A petition for a one month extension of time and an Applicant's check in the amount of \$120.00 drawn to the order of Commissioner accompanies this Request. Should the petition become lost, the Commissioner is requested to treat this paragraph as a petition for an extension of time, and should the check become lost, be deficient in payment, or should other fees be incurred, the Commissioner is authorized to charge Deposit Account No. 02-4943 of Applicant's undersigned attorney in the amount of such fees.

No other issues remaining, reconsideration and favorable action upon all of the claims now present in the application is respectfully requested. Should any questions remain unresolved, the Examiner is requested to telephone Applicant's undersigned attorney.

Respectfully submitted,



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